UPDATE

SCDHEC Environmental Laboratory Certification

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November 1999

Schedule for First WS Study 2000 Set

PT Providers Announced

Water Supply Study 2000 Schedule

The first study will be initiated upon receipt of this newsletter and will apply only to laboratories certified for drinking water parameters under the Safe Drinking Water Act. These Proficiency Testing (PT) samples test your laboratory=s ability to accurately analyze samples and report results. Successful analyses are required to maintain certification (Reg. 61-81). If your laboratory is certified for any of the parameters listed on page 2, it must order and successfully analyze a PT sample for each. Audit samples analyzed before October 25, 1999 or from providers not approved by NVLAP (National Voluntary Laboratory Accreditation Program) cannot be accepted.

January 10, 2000

Laboratories participating in the study must order samples from the providers listed on page 3 before this date. Laboratories are encouraged to order their samples as soon as possible, and providers should ship samples to laboratories as quickly as possible after receiving the order.

February 25, 2000

Participating laboratories must have received samples, analyzed them, and reported results to the providers by this date. **Do not** submit your results to our Office, but keep a copy for your files.

March 17, 2000

Providers will have the reports submitted to our Office and to the participating laboratories by this date. Each laboratory will be responsible for reviewing its report for samples which were unacceptable. Laboratories must analyze an additional PT sample in the follow-up study starting next quarter (April 2000) for each parameter/method for which it received an unacceptable result in the initial study. Our Office will be scheduling PT studies for each program area (Water Supply/SDWA and Water Pollution/CWA) back-to-back. See discussion below.

April 7, 2000

Participating laboratories must place an order for repeat samples by this date.

May 23, 2000

Participating laboratories must have received repeat samples, analyzed them, and reported results to the providers by this date.

June 14, 2000

Providers will have the reports for repeat samples submitted to our Office by this date. Our Office will process these and take the appropriate actions regarding a laboratory=s certification status. The laboratory will be decertified for any parameter or method for which sample results are unacceptable in both the initial and make-up studies. Laboratories will be notified by **June**

30, 2000.

Instruct providers to mail sample reports to: **Nelson Roberts, SCDHEC Environmental Laboratory Certification, P. O. Box 72, State Park, SC 29147.**

Water Supply Study 2000 Schedule, continued

Our Office will schedule the initial and repeat studies back-to-back. If a laboratory receives unacceptable results for the initial Water Supply Study, it should not have to wait months for the next Water Supply Study as we have done in the past. The laboratory should participate in a second Water Supply Study immediately afterwards (during the next quarter) to show that the problems which caused it to fail initially have been corrected. With these Water Supply Studies completed, we can focus on the Water Pollution and DMR-QA Studies. Note that the Water Pollution Study should coincide with the DMR-QA study so that laboratories can use the same samples and report for both studies. These studies should start in mid-2000 to prevent overlap with the Water Supply Studies and should be completed in December 2000 so that WS Study 2001 can begin in January 2001. Laboratories participating in the WP or DMR-QA Studies will be notified as soon as a schedule becomes available.

Parameters Requiring PT Samples

Note that, for the first time, laboratories will be required to analyze PT samples for **microbiological parameters**. Also, laboratories must analyze one PT sample for **each method** that they are certified to perform, provided a PT sample is available. For example, if a laboratory is certified for the ion chromatography method (EPA 300.0) and the manual electrode method (SM18 4500 F-C) for fluoride determinations, the laboratory must analyze a PT sample using each method and report both results with their corresponding method references.

These changes place much of the responsibility for the studies on the participating laboratories. They must be able to identify the parameters which require the analysis of PT samples, find the provider that can provide the samples they need within the time specified by the schedule, order and pay for the samples, and analyze and report them in a timely fashion.

Compare your certified parameter list to the list below, and use the list as a check sheet to indicate the parameters for which you need PT samples. Note that if the laboratory is certified to analyze for a particular parameter/analyte using more than one method, results must be reported for each method. The affected parameters are:

Trace Metals
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Copper
Lead
Manganese
Mercury
Molybdenum
Nickel
Sodium
Selenium
Thallium
Zinc

Microbiology
Total Coliform(pres./abs.)

Inorganic - Mineral
Alkalinity
Calcium-Hardness
Fluoride
pH/Hydrogen-Ion Conc.
Sulfate

Inorganic - Miscellaneous
Cyanide
Residual Chlorine
Turbidity
Asbestos

Inorganic - Nutrient
Nitrate-Nitrogen
Nitrite-Nitrogen
Orthophosphate

Inorganic - Residue

Residue, Filterable (TDS)

Inorganic - Demand
Total Org. Carbon (TOC)

VOCs
Regulated VOCs
Unregulated VOCs
Trihalomethanes

SOCs
EDB and DBCP
Haloacetic Acids
Pesticides
Chlor. Acids (Herbicides)
Diquat
Endothall
Glyphosate
N-Methyl Carbamates
PCBs as
Decachlorobiphenyl
Phthalate and Adipate
Esters
Benzo(a)pyrene
2,3,7,8-TCDD

Disinfection By-Products
Bromate
Bromide
Chlorite

Providers of Proficiency Testing Samples

Our Office would like to inform all environmental laboratories certified by the State of South Carolina that the list of approved providers of proficiency testing (PT) samples is available, and our Office is initiating the first study according to the schedule on page 1. As expected, many changes will result from the privatization of the PT studies. The most important change will be the responsibility of laboratories to find a provider that will meet their needs, order and purchase samples, and report back to the provider in a timely manner. Every provider contacted by this Office had a slightly different schedule for having samples available, so laboratories will have to shop around for a provider which can meet our schedule. Note that the approved provider list, along with the samples they provide, can change. For the most recent status of providers, visit the website at *http://ts.nist.gov/ts/htdocs/210/214/scopes/calchem.htm*.

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Notice to Certified Laboratories Located Outside South Carolina

Environmental laboratories certified by the State of South Carolina located outside of South Carolina must participate in PT studies also. If you are participating in a study mandated by your certifying authority after October 25, 1999, you may submit those results to our Office. If your certifying authority has not initiated a study, you must participate in this one. The PT providers you use should send reports for your laboratory directly to our Office. Note that out-of-state laboratories must also analyze one PT sample for each certified method to meet the requirements of our Office, even if your state certifying authority does not require this. If you have complications meeting our schedule, please contact our Office.

Advisory Council Established

And the winners are...

In an effort to widen the avenues of communication between the laboratory community and the Office of Environmental Laboratory Certification, the SC Laboratory Environmental Advisory Council was born at the August 18, 1999 Laboratory Certification meeting in Columbia. An Ad Hoc committee was selected and nomination forms were sent to all SC certified laboratories. The Ad Hoc committee for the selection of the SC Laboratory Environmental Advisory Council members met on October 6, 1999 after Hurricane Floyd postponed an earlier meeting. The following decisions were made by the Ad Hoc Committee:

1. **Number of representatives**: Two representatives from each of the six categories of laboratories represented in the state and two representatives from the Office of Environmental Laboratory Certification were chosen.
2. **Term Limits**: Of the two representatives, one would serve a four year term and the other would rotate off the council after two years, leaving the seat available for future nominations. The Advisory Council would decide who would rotate off first.
3. **Selection Process:** Council representatives were selected based upon laboratory experience and location in the state. The committee members were very concerned that all parts of the

state would be represented and that the members would have experience with different types of laboratory analyses, issues, and certifications. However, in categories where only two nominations were received, both nominees were chosen. The following representatives were chosen from a total of 33 nominations received.

We thank all those who participated in this process. If you have issues concerning certification or other pertinent issues please contact the representative in your laboratory category so that it will be addressed at the Advisory Council meetings. Thanks again.

Commercial Laboratories

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Advisory Council Members, continued

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Laboratory Certification

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Payment of Annual and Application Fees

Major Credit Cards Now Accepted

Our Office will now accept payment of annual fees and application fees using VISA or MasterCard. To make a payment by credit card, complete the form that accompanies the invoice for annual fees and return it. Alternatively, payment can be made via phone by calling Iris Cantrell at (803)935-6863 or Pam Helton at (803)898-3935.

Microbiology - Criteria and Clarifications

Autoclave Records

Laboratories are required to maintain records for the use of their autoclave for sterilizing media, glassware, dilution water, etc. Our Office requires the laboratory to document the sterilization time (i.e. the time period that the autoclave is at sterilization temperature and pressure). We also suggest that the laboratory document the sterilization cycle time (i.e. time from the initiation of the procedure through heating, sterilization period, and cooling/depressurizing) but it is not required.

Fecal Coliform MF - Multiple Dilutions

Laboratories are required to use a sample volume which will produce between 20 and 60 fecal coliform colonies on the membrane filter. To make sure this range requirement is met, many laboratories will filter various sample volumes, referred to as dilutions, on separate filters. Hopefully, at least one of these will produce enough fecal coliform colonies in the countable range. The requirement is that a laboratory must filter enough sample (up to 100 ml maximum) to produce 20 to 60 fecal coliform colonies on the membrane filter, not that multiple dilutions be performed. The use of multiple dilutions is the technique that is used to meet the required count. If a laboratory filters only one sample volume and achieves fecal coliform colonies in the countable range, it has met the requirement. However, due to the variability of samples, this is highly unlikely. Chances are that several volumes of the sample will have to be filtered. If a laboratory is not meeting this requirement, it will be cited for a deficiency. It is the laboratory=s responsibility to become familiar with its samples in an effort to predict its behavior and estimate the volumes which must be filtered. If a laboratory filters volumes of 10, 20, and 40 ml and at least one filter produces colonies in the countable range on a routine basis, and suddenly none of the volumes produce colonies in the countable range, the laboratory must respond to this by increasing the number of dilutions and filtering different volumes of sample to meet the requirement.

Total and Fecal Coliform Colony Verification

Laboratories certified for the total and/or fecal coliform membrane filtration procedure are

required to verify that the colonies they have identified as total and/or fecal coliform are indeed as they say. At a minimum, a verification of this type must be performed monthly by the laboratory, and at least quarterly by each analyst involved in microbiological tests at the laboratory. This requirement tests the analysts ability, the media, and the procedure as practiced by the laboratory and keeps the analyst ready for any event which may require colony verification. The verification procedure must include up to five typical colonies if they are available and at least one colony from each atypical group identified by the analyst. Note that the analyst should verify enough colonies of each type to represent that population. If a routine monitoring sample does not produce colonies for verification, the laboratory must find an environmental sample source which will produce colonies for verification.

It is the laboratory=s responsibility to verify any total coliform positive drinking water sample and any total or fecal coliform colony which is questionable. Questionable colony types which routinely verify positive during the monthly procedure must be verified if encountered at other times. For example, if light pink colonies verify positive during the monthly verification procedure and pink colonies are observed on a distribution system sample, the laboratory must verify these colonies. They should not assume that, because the colonies are not red or might not have a green sheen that they are not total coliform colonies unless verifications are performed. Remember, it is the laboratory=s responsibility to make judgements which favor the health and safety of the public it serves.

Our Office has written a more detailed document about verification requirements. If your laboratory does not have a copy and wants one, please call, email, or write to our Office requesting a copy. If your email address is included, we may be able to send a copy to you electronically.

EPA Approval and SC Certification Not the Same

We occasionally receive notification from the EPA that one of our certified laboratories has requested approval for a method to analyze for a particular parameter, and the request has been approved. For example, several laboratories have approval from the EPA to analyze samples for parameters such as bromide using EPA method 300.0 under the Clean Water Act. If the laboratory intends to analyze samples and report results to SCDHEC, the laboratory must apply to our Office for certification of that method for that parameter.

Method 5035- Preservation Problems

In the magazine *Environmental Testing and Analysis* (September/October 1999), Alan Hewitt discusses a potential problem caused by the preservation of soil samples with sodium bisulfate. Mr. Hewitt states Athat lowering the pH (with sodium bisulfate) of some matrices, the formation of acetone, a regulated compound itself, has been observed. Greater concentrations of acetone in laboratory soils and its appearance in field soils was found to be associated with both lowering the pH and presence of sodium. While not conclusive, the source of acetone is likely to be the decomposition of natural biologically produced compounds in either low pH or reduced moisture conditions.@ It has also been reported that the use of sodium bisulfate results in the decomposition of styrene. Therefore, if styrene is a contaminant of concern, it is important not to preserve the sample with sodium bisulfate, but to preserve the sample by freezing.

EPA Region IV has also noted the problem with acetone and they have been unable to isolate the source. Keep in mind that acetone is a common laboratory contaminant and the presence of acetone in a sample cannot be attributed only to the use of sodium bisulfate as a preservative. It could also result from improper collection practices by field personnel and/or contamination during preparation of sample containers and storage of the samples. It is very important to use field blanks and trip blanks to identify the source of the contamination.

As an alternative to the use of sodium bisulfate, samples that contain carbonates or styrene can be frozen for preservation. The sample can be collected in an Encore sampler and then transferred to a vial containing 5 ml of water, or the sample can be collected in a preweighed vial containing 5 ml of water and a stir bar. It is then frozen at -10 to -12^{o}C within 48 hours of collection. Avoid freezing at lower temperatures because the vial may break and/or leak. The vial is stored by laying the vial on its side. The sample must be analyzed within 14 days of collection. The field and trip blank must also be stored in the freezer with the sample for the same amount of time.

New Documents Available

Recently published documents which may be beneficial to your laboratory are listed below. To order any of the publications or to receive monthly updates for the publications and services available through the EPA=s Office of Water Resource Center, please contact the WRC via email (*center.water-resource@epa.gov)*, telephone (202/260-7786), or fax (202/260-0386). Please include your email address within the body of your request. This service is provided by the US EPA Office of Water Resource Center.

- Office of Ground Water and Drinking Water Publications catalog (EPA 810/B-99-001)
- Providing Safe Drinking Water in America: 1997 National Public Water Systems Compliance Report and 1996 Safe Drinking Water Act Amendments, April 1999 (EPA 305/R-99-002)
- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants (EPA 833/B-99-002)
- Microbial and Disinfection Byproducts Rules Simultaneous Compliance Guid. Manual (EPA 815/R-99-015)
- National Representative Sample of Small Public Water Systems: Statistical Design and State Plans for the Unregulated Contaminant Monitoring Regulation, August 1999. (EPA 815/R-99-003)
- Unregulated Contaminant Monitoring Regulation Analytical methods and Quality Control Manual, August 1999, (815/R-99-004)

Workshops and Meetings

The fifth interim NELAC (National Environmental Laboratory Accreditation Conference) meeting is scheduled for December 14 - 17, 1999. The meeting will be held at the J. W. Marriott Hotel in Washington, D. C. The sixth annual NELAC meeting will be held June 26 - 29, 2000 in Williamsburg, VA at the Fort Magruder Inn and Conference Center. For additional information about either of these meetings, contact Kathryn Sutton, US EPA, at (202)564-6830 or Lisa Doucet, US EPA, at (202)564-1416.

A Biosolids Workshop cosponsored by the Biosolids Committee and the Laboratory Committee of WEASC has been scheduled for May 17 and 18, 2000. The workshop will cover the Proper Protocol for Sampling and Analysis of Biosolids. More information will be available in the next *Update*.

New Hexane Extraction Method for Oil & Grease

EPA Methods 1664A, 9070A, and 9071B

A final rule was published on May 14, 1999 approving the use of Method 1664A for Oil & Grease under the Clean Water Act. This rule also deletes Method 9070 and replaces it with Method 9070A, which refers the reader to Method 1664A according to Update IIIA in the OSW website. It also deletes Method 9071A and replaces it with Method 9071B. This rule was effective June 14, 1999. We have recently updated our application to include certification for these new methods.

The rule addresses the following issues that would have to be answered by the specific SCDHEC Program area that the data is being submitted to for regulatory compliance.

1) The rule still allows the use of the CFC-113 (Freon) methods. EPA Method 413.1 and Standard Methods 5520B are liquid-liquid extraction methods that use CFC-113 (Freon) as the extraction solvent for oil & grease determinations. We currently have 76 laboratories certified for Method 413.1 and 16 laboratories certified for Standard Methods 5520B. You will have to contact the specific program area to determine if or when a permit will be changed to reflect the use of the hexane methods. The program area must also be contacted to determine if the hexane method can be used for compliance purposes prior to a permit change.

The rule states that EPA strongly encourages dischargers/generators/industrial users to substitute Method 1664A, beginning on the effective date of this rule rather than awaiting

reissuance of the existing permit that currently requires use of a CFC-113 method. Also, instead of awaiting permit reissuance, EPA encourages prompt modification of the existing permit to specify the use of Method 1664A.

The rule also talks about the differences that may be encountered. For example, a laboratory using n-hexane might extract an amount of oil & grease greater or less than the amount extracted by Freon-113. The rule states that if these instances affect compliance, the permitting authority may wish to consider establishing a conversion factor, multiplier, or divisor to account for these differences in the permit. The EPA emphasizes that few, if any, instances will likely be found in which the differences between the methods affect compliance and, therefore, urges direct substitution of the presently approved methods with Method 1664A by the effective date for this rule.

Region IV has been allowing laboratories to receive interim approval for EPA Method 1664, but the laboratory could not be approved for Method 413.1 if they chose to be approved for Method 1664. Now the EPA states that both methods can be used. Therefore, it now appears that we will be required to certify laboratories for both methods until SCDHEC substitutes Method 413.1 with Method 1664-Revision A and no longer allows the use of 413.1.

2) EPA Method 1664A allows the use of solid phase extraction (SPE) without prior demonstration of equivalency. However, EPA has added a note at the beginning of the extraction procedure (Section 11.3) in Method 1664A to indicate that it is the discharger/generator=s responsibility to assure that the results produced are equivalent to the liquid-liquid extraction (LLE) technique. If there is doubt about this equivalency, LLE is definitive for the measurement. EPA also acknowledges that if a Region, State, or other permitting authority has concerns about the difference in the results produced by the SPE and LLE, that authority may specify in the permit the use of one of the two techniques. In some cases the SPE may be more efficient in recovering the oil & grease and cause the permittee to be out of compliance. This will be a concern to the permittee and the laboratory may want to discuss this with the permittee and plan to do some preliminary testing with this extraction technique

The program area receiving the data must approve the use of this alternate extraction technique. We will certify laboratories for both of these extraction techniques, but they may not always be accepted for all projects or monitoring data submitted to SCDHEC. The laboratory is responsible for ensuring that data generated using a specific extraction technique are acceptable to the specific SCDHEC program area.

3) This rule also deletes Method 9070 and replaces it with Method 9070A (which refers the reader to Method 1664A) and replaces Method 9071A with Method 9071B. We currently have 21 laboratories certified for Method 9070 and 21 laboratories certified for Method 9071A. We will be working with the Program areas on when the Freon methods will be phased out and replaced with the hexane extraction methods. In the meantime, please contact the relevant Program Area if you have any question concerning what methods are acceptable for compliance reporting.

Applying for Certification for EPA Methods 1664A, 9070A, and 9071B

All laboratories currently performing Standard Methods 5520B, EPA Methods 413.1, 9070, and 9071 may not be properly equipped to perform extractions using n-hexane due to the safety precautions required for safe handling and storage. In fact, the original method has been modified to expand and reemphasize the toxicity of n-hexane along with the safe handling procedures required for handling this solvent. Method 1664A requires that certain pieces of equipment, such as water bath, centrifuge, and fume hood, be explosion proof and the section of the method on safety was expanded to address in greater detail personnel monitoring and the hazards of handling n-hexane.

In-State Laboratories Certification Process

Laboratories will be required to apply for Methods 1664A, 9070A, and 9071B by submitting a complete application package with a SOP, initial demonstration of capability, method detection limit studies, and acceptable performance evaluation sample result. These applications must be

reviewed and on-site evaluations must be performed before certification can be issued. If you would like to apply for one or more of these methods, please contact our office and request an application package for oil & grease.

Out-of-state Laboratories Certification Process

For out-of-state laboratories, the state certifying authorities must certify your laboratory before we can grant certification in our state. Laboratories will be required to apply for Methods 1664A, 9070A, and 9071B by submitting a complete application package with a SOP, initial demonstration of capability, method detection limit studies, and acceptable performance evaluation sample results, along with a current certificate and copy of the on-site evaluation report from the certifying authority. If you would like to apply for one or more of these methods, please contact our office and request an application package for oil & grease.

New Parameters and Methods Offered for Certification

We are constantly updating and changing our application to include new parameters and methods as they are approved for use in an effort to try and make things easier and current for the regulated community. Please ensure that you have the most recent revision of the application when you apply for certification. The new parameters and methods being added to our application are listed below.

Clean Water Act

Oil & Grease - EPA Methods 1664A
Pharmaceutical Methods - EPA Methods 1666A, 1671A, and 1667A.
Mercury - EPA Method 1631B

Solid and Hazardous Waste

Oil & Grease - EPA Methods 9070A and 9071B.

Drinking Water -Disinfection By-Product Rule (DBPR)

Bromate - EPA Method 300.1
Chlorine Dioxide - Standard Methods 4500-ClO_2D and E
Chlorite (Daily Monitoring) - Standard Methods 4500-ClO_2E
Chlorite (Monthly Monitoring) - EPA Methods 300.0 and 300.1
Bromide - EPA Methods 300.0 and 300.1
Haloacetic Acids (HHA5) - EPA Methods 552.1 and 552.2, Standard Methods 6251B
TOC/DOC - Standard Methods 5310 B,C,D
UV_{254} - Standard Methods 5910B
TTHM - EPA Methods 502.2, 524.2, 551.1. (These methods are in Supplement III of the Methods for the Determination of Organic Compounds in Drinking Water, USEPA, August 1995, EPA/600/R-95/131. These methods are not currently approved for use with the Safe Drinking Water Act.)

The Standard Methods 19th Edition is referenced by the Disinfection By-Product Rule (DBPR). The Standard Methods 18th Edition is the approved method reference for Safe Drinking Water Act (SDWA) parameters. Because the DBPR references different versions of the methods approved under the Safe Drinking Water Act, the laboratory will need to review the methods to document any differences in the procedures. We do expect the method references for the SDWA to be updated by the end of this year.

Internet Information

For EPA laboratory certification information, past issues of the EPA=s LabCert Bulletin, the AManual for the Certification of Laboratories Analyzing Drinking Water@ and the errata sheets, visit the laboratory certification web site at *http://www.epa.gov/ogwdw/standards*.

For information about wetlands laws, regulations, and guidance, visit *http://www.epa.gov/OWOW/wetlands/regs.html.*

For information related to water and agriculture, visit the National Agricultural Library (NAL) Water Quality Information Center at *http://www.nal.usda.gov/wdquic/*.

For information about companies doing business in the area of water treatment, visit Water Technology Online at *http://www.waternet.com/*.

To discuss Whole Effluent Toxicity (WET) issues, visit *http://www.onelist.com/subscribe/wet*.

For a variety of information, including legal matters, related to WET, visit *http://www.toxicity.com*.

For information regarding the Society of Environmental Toxicology and Chemistry, visit *http://www.setac.org*.

SCDHEC Environmental Quality Control also has a web site. Its address is *http://www.state.sc.us/dhec/eqc.*

If any of our readers know of any good web sites that might be of interest, please let us know. Note that they should be related to laboratory certification and environmental issues.

Certificates of Analysis

The certificate of analysis used mainly by commercial laboratories when reporting results to their clients must document the following items:

- SC Environmental Laboratory Certification Number for the laboratory performing each of the analyses.
- Sample Identification Number.
- Date and time of collection.
- Date and time of extraction (for organics only).
- Date and time of analysis.
- Method employed for extraction (for organics only).
- Method employed for analysis.
- Reporting limit for each method and analyte (if applicable).
- Results with applicable units.
- Analyst=s initials.

Note that if a contracted laboratory subcontracts the sample analyses to another SC certified laboratory, the certificate of analysis must reflect the certification number of the laboratory which performed the analysis.

Verify Certification of Contracted Entities

Our Office has received complaints about facilities which use a third-party entity, usually an individual with an operator=s license or an engineering firm, to collect regulatory and compliance samples and transport them to a commercial laboratory for analysis. The situation usually occurs at a waste water treatment facility analyzing samples for compliance with NPDES permits which usually require field parameter analyses (pH, dissolved oxygen, and residual chlorine). The third-party entity has been analyzing for the field parameters on-site when samples are collected as required by the permit, but the entity is not certified by our Office to perform these analyses. Instead, the entity reports these field samples on the DMR form as being analyzed by the commercial laboratory which analyzed the other samples. The commercial laboratory is unaware that their laboratory identification number is being used in this manner. This practice is unlawful, and facilities which use third-party entities doing this could receive a notice of violation and face fines.

To verify that the contractors you are using are certified, please contact our Office at (803)935-7025.

Turbidity

Guidance for New Turbidimeters

For new turbidimeters, such as the Hach 2100A or N, follow the manufacturer=s instructions for calibrations. The new Hach turbidimeters include Hach StablCal primary standards with NTU values of <0.1, 40, and a couple of higher values. The meter cannot be directly calibrated with primary standards between <0.1 and 40 NTU. If the turbidimeter cannot be calibrated in the range of use,

the meter must be calibrated as instructed by the manufacturer, and the laboratory must verify calibration in the low range by checking one or more primary standards in the range of use, usually 0.5 to 1 NTU for drinking water, as part of the calibration procedure. This primary standard must read within 10% of the true value. If not, the turbidimeter is not calibrated in this lower range and cannot be used to analyze drinking water. The following are primary standards: Hach StablCal solutions, Formazin, or AMCO-AEPA. Remember that these calibrations must be completely documented.

Readings higher than 40 NTU can be made with the new turbidimeters as long as the calibration is verified in the range of use. If the turbidimeter calibration cannot be verified (within 10% of the true value) on the day of analysis, the sample can be diluted with deionized water to within the range of calibration.

Continuous Monitoring Turbidimeters

If used for reporting purposes, follow the manufacturer=s instructions for calibration and check against the bench top laboratory turbidimeter once a day. The agreement between the readings from the continuous monitoring turbidimeter and the bench top laboratory turbidimeter must be within 10% of each other. Documentation of the comparison readings must be maintained for review.

Survey Results Are Positive

SCDHEC Gets High Approval Rating

According to a recent survey, customers are generally satisfied with DHEC, although there is room for some improvement. More than 77% of respondents had a positive or very positive impression of the Agency, according to the survey by the University of South Carolina=s Survey Research Laboratory. Of those who used a DHEC service in the past five years, more than 80% had a positive or very positive impression. 98% said that they would use a DHEC service again, and 97.4% would recommend DHEC to someone else.

Areas where improvements could be made include reducing wait time, providing quicker response, upgrading facilities, and educating the public about agency services.

Copies of the survey can be obtained by calling Gwen Dixon at (803)935-6590.

DMR-QA Participants

For those of you who haven=t heard...

The chemistry portion of DMR-QA 19 has been canceled. Laboratories were required to submit results for the DMR-QA toxicity portion of the study to the EPA by November 15, 1999.

Reporting Forms for Analytical Data to SCDHEC

The Bureau of Land and Waste Management is developing reporting forms to be used for the submission of waste stream characterizations for industrial solid waste landfills, soils, sludges, remediations, and other characterizations submitted to the Department. These forms will be used for reporting industrial RCRA-TCLP metals, volatile, and semivolatile organic compounds and industrial-TCLP/R.61-58.5 inorganic, volatile, and semivolatile organic compounds as they apply to the facility. For additional information, please contact Steve Burdick, Bobby Banks, or Howard Moseley at (803)896-4000.

Chain-of-Custody - When Is It Required?

Each certified laboratory must have a written procedure for sample handling in its standard operating procedures manual. To ensure sample integrity, it is required that an accurate written record (chain-of-custody) be available to trace the possession and handling of samples from the moment of collection through analysis and final disposition. This is referred to as chain-of-custody and is important in the event of litigation involving the sample results.

Drinking Water Plants

Drinking Water Plants that collect samples for analysis in the on-site laboratory facility are not required to maintain chain-of-custody forms since the sample custody does not change hands and the sample is analyzed when it is collected from the tap as long as the pertinent collection information is maintained elsewhere. Documentation that is kept in the analysis records includes the date and time of analysis, identification of the sample analyzed, and the analyst=s initials. It is understood that the date and time of collection is the same as the date and time of analysis and the sample collector is the same as the analyst. If any of these things are different they must be documented in the records. For example, if the sample is not analyzed immediately after collection, both the date and time of collection and the date and time of analysis must be documented. Also, if the sample is collected by one person and analyzed by another, the records must include the initials of each and clearly identify what each individual did.

Drinking Water Plants collecting samples outside of the laboratory facility (distribution samples or other samples) must maintain chain-of-custody records for the samples collected. The laboratory must use a field logbook or chain-of-custody form (sample collection record) that is completed on-site by the sample collector at the time of sample collection. The information recorded must include the date and time of collection, sample location, sample collector, # of sample containers, preservation, and analyses required for the sample(s). Note that the exact tap from which the sample was collected must be identified. When sample custody is transferred, the relinquishing and receipt of the sample with the person=s name and date and time of transfer must be documented. This includes receipt in the laboratory. Sample contracted to another laboratory for analysis must be identified on the chain-of-custody form and in the sample log.

When the samples are delivered in the laboratory, the sample custodian (person receiving the sample) must verify the chain-of-custody information, assign a unique laboratory identification number to each sample, and put this number on the sample container and on the chain-of-custody form. This unique identification number will be used in the sample analysis records and any other documentation (e.g. reports and certificates of analysis) to identify the sample for traceability to the chain-of-custody form to ensure that the sample was collected properly and that sample holding times have been met.

A receipt logbook or record is maintained by the laboratory to document the receipt of the samples in the laboratory and to assign and keep track of the unique identification number. This logbook needs to document the date and time of receipt, the sample receiver (custodian), unique identification number, sample identification or description, sample type, and analyses to be performed. Depending on the number and type of analyses performed by the laboratory and the documentation maintained in other records, a receipt logbook may not always be needed. Many drinking water plants are able to combine the chain-of-custody and receipt information to avoid the use of a sample receipt logbook.

If a unique identification number is not used, the laboratory must document the sample collection information on each analysis record pertaining to analysis of this sample, since there is not a means to provide traceability to the pertinent collection information. The use of a unique identification number eliminates the need to document the sample collection information on each analysis record and is strongly recommended by the Office of Environmental Laboratory Certification.

Field Analyses

Chain-of-custody forms are not required for field analyses (pH, DO, chlorine, and temperature) or any other analyses performed at the collection site (such as specific conductance) since the analyses are performed at the same time that the samples are collected. It is understood that the date and time of collection is the same as the date of time of analysis written on the sample

analysis form. Information that must be documented for field analyses include date and time of collection/analysis, sample location, sample collector/analyst, and sample analysis results. Instrument calibration records must be traceable to the meter employed for the field analyses.

Wastewater Treatment Plants

Since NPDES samples are collected outside of the laboratory, it is required that chain-of-custody documentation be maintained on all samples brought back to the laboratory for analysis. If the operator or analyst must leave the laboratory facility to collect the sample, chain-of-custody records are required for this sample.

The lab must use a field logbook or chain-of-custody form that is completed on-site by the sample collector at the time of sample collection. The information recorded must document the date and time of collection, sample location, sample collector, sample type (grab or composite) # of sample containers, preservation, analyses to be performed on the sample, and the relinquishing and receipt of the sample with the person=s name and date and time. Sample analyses contracted to another laboratory for analysis must be identified on the chain-of-custody form with the pertinent relinquishing and receipt information.

For composite samples, the date and time the composite sampler is started and the date and time the sampling is ended must be documented on the chain-of-custody form or in a field record that can be traced to the chain-of-custody form.

Upon arrival in the laboratory, the sample custodian (person receiving the sample) must verify the chain-of-custody information, assign a unique laboratory identification number to each sample, and put this number on the sample container and on the chain-of-custody form. This unique identification number will be used in the sample analysis records to identify the sample for traceability to the chain-of-custody form. This traceability is required to ensure that the sample was collected properly and that sample holding times have been met.

A receipt logbook is maintained to document the receipt of the samples in the laboratory and assign the unique identification number. This logbook needs to document the date and time of receipt, the sample receiver (custodian), unique identification number, sample identification or description, sample type, and analyses to be performed. Depending on the number and type of analyses performed by the laboratory and the documentation maintained in other records, a receipt logbook may not always be needed. Many wastewater plants are able to combine the chain-of-custody and receipt information to avoid the use of a sample receipt logbook.

Contracted Sample Analyses

Sample analyses contracted to another laboratory for analysis must be identified on the chain-of-custody form with the pertinent relinquishing and receipt information. A copy of the original chain-of-custody form must be forwarded with the letter of transmittal to the sub-contracting laboratory. This requirement ensures that the contracting laboratory is able to determine whether the sample was properly collected and preserved and can meet the applicable holding time requirements.

Questions? Do you have a question you would like to see addressed in an upcoming issue of the AUpdate@? If so, write, call, or e-mail Nelson Roberts (see below) and your question may appear in the next issue.

How to Reach Us

Laboratories can contact the Certification Officers at their phone number or e-mail address below.

Certification Officer	*Phone Number*	*E-Mail Address*
Amy Bennett	(803)935-7097	bennetam@columb36.dhec.state.sc.us
Wayne Davis	(803)935-7025	davisrw@columb36.dhec.state.sc.us
Charmaine Flemming	(803)935-6867	flemmica@columb36.dhec.state.sc.us
Anthony (Tony) Lofton	(803)935-6858	loftonat@columb36.dhec.state.sc.us
Connie Turner	(803)935-6861	turnercp@columb36.dhec.state.sc.us
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